**C:\Users\jar3qf\Documents\Variation Project\output 1_nmos.tiff**

**Figure 9 – Ring Oscillator Operation for 1 NMOS On**

**C:\Users\jar3qf\Documents\Variation Project\virtual_vss 1_nmos.tiff**

**Figure 10 – Virtual VSS for 1 NMOS On**

**C:\Users\jar3qf\Documents\Variation Project\output 6_pmos.tiff**

**Figure 11 – Ring Oscillator Operation for 6 PMOS On and 5 NMOS On**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1 PMOS On** | **6 PMOS On** | **1 NMOS On** |
| **Period** | 130.76 ps | 122.71 ps | 144.39 ps |
| **Frequency** | 7.6476 GHz | 8.149 GHz | 6.926 GHz |
| **Virtual VDD** | 0.965 V | 1.07 V | 1.1 V |
| **Virtual Gnd** | 0V | 0.03 V | 0.2495 V |

**Table 1 – Test Results**

**C:\Users\jar3qf\Documents\Variation Project\tempvariation_freq_pmos.tiff**

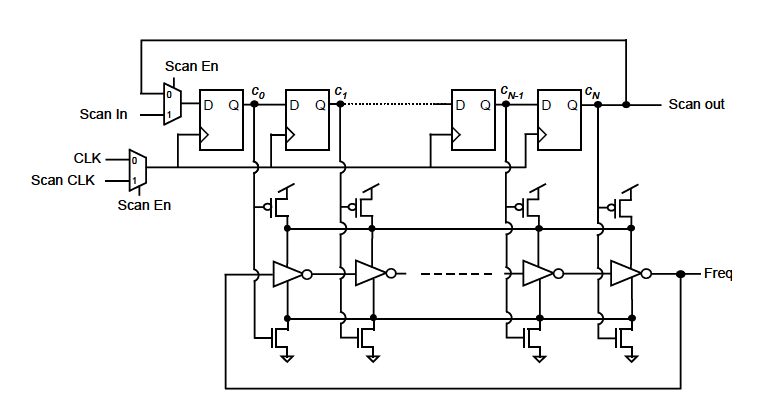
**Figure 12 – Ring Oscillator Operation for 1 PMOS On at Various Temperatures**

**C:\Users\jar3qf\Documents\Variation Project\tempvariation_freq_nmos.tiff**

**Figure 13 – Ring Oscillator Operation for 1 NMOS On at Various Temperatures**

C:\Users\jar3qf\Documents\Variation Project\temp variation vs freq.tif

**Figure 14 – Ring Oscillator Frequency with Varying Temperature**

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**Figure 15 – Oscillator Circuit from Reference [5]**